

WHAT IS CLAIMED IS:

1. A game system which performs perspective projection conversion of vertex coordinates of a plurality of polygons forming three-dimensional objects located in  
5 an imaginary three-dimensional space based on perspective conversion matrix, and forms display images of the three-dimensional objects on a projection plane of a viewpoint coordinate system, comprising:  
a storage unit for storing at least data of the vertex coordinates of the plurality of polygons and data of the perspective conversion matrices;  
10 a coordinate conversion unit for reading out the data of the vertex coordinates of the plurality of polygons and the data of a plurality of perspective conversion matrices different from each other from the storage unit, and for performing perspective projection conversion of the vertex coordinates of the plurality of polygons for each of the plurality of perspective conversion matrices; and  
15 an image processor for forming display images of the three-dimensional objects on the projection plane of the viewpoint coordinate system based on the vertex coordinates of the plurality of polygons after the perspective projection conversion.

2. A game system according to claim 1, wherein the coordinate conversion unit comprises:  
20 a unit for fixing the data of the vertex coordinates of the plurality of polygons read out;  
a unit for newly reading out data of a plurality of perspective conversion matrices different from each other from the storage unit instead of the data of the plurality of perspective conversion matrices already read out; and  
25 a unit for performing the perspective projection conversion of the fixed data of the vertex coordinates of the plurality of polygons for each of the plurality of the perspective conversion matrices newly read out.

30 3. A game system according to claim 2, wherein the newly reading unit repeatedly reads out the data of the plurality of perspective conversion matrices.

4. A game system which performs perspective projection conversion of vertex coordinates of a plurality of polygons forming three-dimensional objects located in

an imaginary three-dimensional space based on perspective conversion matrix, and forms a display image of the three-dimensional objects on a projection plane of a viewpoint coordinate system, comprising:

- 5      a storage unit for storing at least data of the vertex coordinates of the plurality of polygons and data of the perspective conversion matrices;
- a transfer unit for transferring the data of the vertex coordinates of the plurality of polygons and the data of a plurality of perspective conversion matrices different from each other from the storage unit;
- 10     a coordinate conversion unit for receiving the transferred data and for performing perspective projection conversion of the vertex coordinates of the plurality of polygons for each of the plurality of perspective conversion matrices; and
- an image processor for forming display images of the three-dimensional objects on the projection plane of the viewpoint coordinate system based on the vertex coordinates of the plurality of polygons after the perspective projection conversion.

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- 5. A game system according to claim 4, wherein the transfer unit comprises a unit for newly transferring only data of the plurality of perspective conversion matrices different from each other after transferring the data of the vertex coordinates of the plurality of polygons and data of a plurality of perspective conversion matrices different from each other, and wherein the coordinate conversion unit comprises a unit for fixing data of the vertex coordinates of the plurality of polygons transferred; and a unit for performing perspective projection conversion of the vertex coordinates of the plurality of polygons fixed for each of the plurality of perspective conversion matrices newly transferred.

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- 6. A game system according to claim 5, wherein the newly reading unit repeatedly reads out the data of the plurality of perspective conversion matrices.

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- 7. A display image forming method performed by a game system which performs perspective projection conversion of vertex coordinates of a plurality of polygons forming three-dimensional objects located in an imaginary three-dimensional space based on perspective conversion matrix, and forms a display image of the three-dimensional objects on a projection plane of a viewpoint coordinate system, the method comprising the steps of:

storing at least data of the vertex coordinates of the plurality of polygons and data of the perspective conversion matrices;

reading out the data of the vertex coordinates of the plurality of polygons and data of a plurality of perspective conversion matrices different from each other from the storage unit, and performing perspective projection conversion of the vertex coordinates of the plurality of polygons for each of the plurality of perspective conversion matrices; and

forming display images of the three-dimensional objects on the projection plane of the viewpoint coordinate system based on the vertex coordinates of the plurality of polygons after the perspective projection conversion.

8. A display image forming method performed by a game system which performs perspective projection conversion of vertex coordinates of a plurality of polygons forming three-dimensional objects located in an imaginary three-dimensional space based on perspective conversion matrix, and forms a display image of the three-dimensional objects on a projection plane of a viewpoint coordinate system, the method comprising the steps of:

storing at least data of the vertex coordinates of the plurality of polygons and data of the perspective conversion matrix;

transferring the data of the vertex coordinates of the plurality of polygons and data of a plurality of perspective conversion matrices different from each other from the storage unit;

receiving the transferred data and performing perspective projection conversion of the vertex coordinates of the plurality of polygons for each of the plurality of perspective conversion matrices; and

forming display images of the three-dimensional objects on the projection plane of the viewpoint coordinate system based on the vertex coordinates of the plurality of polygons after the perspective projection conversion.

30 9. A computer-readable storage medium carrying a game program executed in a game system which performs perspective projection conversion of vertex coordinates of a plurality of polygons forming three-dimensional objects located in an imaginary three-dimensional space based on perspective conversion matrix, and forms a display image of the three-dimensional objects on a projection plane of a viewpoint

coordinate system, the game program controls a computer in the game system to function as:

a storage unit for storing at least data of the vertex coordinates of the plurality of polygons and data of the perspective conversion matrices;

5        a coordinate conversion unit for reading out the data of the vertex coordinates of the plurality of polygons and data of a plurality of perspective conversion matrices different from each other from the storage unit, and for performing perspective projection conversion of the vertex coordinates of the plurality of polygons for each of the plurality of perspective conversion matrices; and

10      an image processor for forming display images of the three-dimensional objects on the projection plane of the viewpoint coordinate system based on the vertex coordinates of the plurality of polygons after the perspective projection conversion.

15      10. A medium according to claim 9, wherein the coordinate conversion unit comprises:

a unit for fixing the data of the vertex coordinates of the plurality of polygons read out;

a unit for newly reading out data of a plurality of perspective conversion matrices different from each other from the storage unit instead of the data of the plurality of perspective conversion matrices already read out; and

20      a unit for performing the perspective projection conversion of the fixed data of the vertex coordinates of the plurality of polygons for each of the plurality of the perspective conversion matrices newly read out.

25      11. A medium according to claim 10, wherein the newly reading unit repeatedly reads out the data of the plurality of perspective conversion matrices.

30      12. A computer-readable storage medium carrying a game program performed by a game system which performs perspective projection conversion of vertex coordinates of a plurality of polygons forming three-dimensional objects located in an imaginary three-dimensional space based on perspective conversion matrix, and forms a display image of the three-dimensional objects on a projection plane of a viewpoint coordinate system, the game program controls a computer in the game system to function as:

a storage unit for storing at least data of the vertex coordinates of the plurality of polygons and data of the perspective conversion matrices;

a transfer unit for transferring the data of the vertex coordinates of the plurality of polygons and data of a plurality of perspective conversion matrices different from each other from the storage unit;

a coordinate conversion unit for receiving the transferred data and for performing perspective projection conversion of the vertex coordinates of the plurality of polygons for each of the plurality of perspective conversion matrices; and

an image processor for forming display images of the three-dimensional objects on the projection plane of the viewpoint coordinate system based on the vertex coordinates of the plurality of polygons after the perspective projection conversion.

13. A medium according to claim 12, wherein the transfer unit comprises a unit for newly transferring only data of the plurality of perspective conversion matrices different from each other after transferring the data of the vertex coordinates of the plurality of polygons and data of a plurality of perspective conversion matrices different from each other, and wherein the coordinate conversion unit comprises a unit for fixing data of the vertex coordinates of the plurality of polygons transferred; and a unit for performing perspective projection conversion of the vertex coordinates of the plurality of polygons fixed for each of the plurality of perspective conversion matrices newly transferred.

14. A medium according to claim 13, wherein the newly reading unit repeatedly reads out the data of the plurality of perspective conversion matrices.

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